REMARKS

Claims 1 and 19 are currently amended. Claims 2-3, 5-18, 20-23, 25-47 and 74-75 were previously presented. Claims 4, 24, and 48-73 are canceled. New claims 76-78 are added. Accordingly, Claims 1-3, 5-23, 25-47, and 74-78 are pending in the application.

Rejection of Claim 1 under 35 USC §102(b)

Claim 1 stands rejected under 35 USC §102(b) as being anticipated by U.S. Patent Number 5,147,739 (Beard). This rejection appears to be based on analogizing Beard's "intercalation compound" to the claimed second active material. The Office Action argues that the "intercalating material will have a gradient consistent with a porous material."

The Applicant has amended claim 1 to recite that the gradient is present before the initial discharge of the primary battery. When Beard' battery is a primary battery as is claimed, Beard does not teach a non-zero gradient of the intercalating material in the anode before the initial discharge of the battery. Further, extrinsic evidence has not been presented that such a gradient exists before initial discharge of Beard's primary battery. Accordingly, Beard does not anticipate claim 1.

Rejection of Claim 19 Under 35 USC §103(q)

Claim 19 stands rejected under 35 USC §103(a) as being unpatentable over Beard in view of U.S. Patent Publication number 2002/0004169 (Yamada).

The Office Action argues that is would be obvious to combine the cited art in order to achieve several advantages. In particular, the Office Action states the following:

> ... it would have been obvious to ... use both LiSiO and SiO as the active materials for the intercalating layer in Beard as taught by Yamada in order to provide a lithium ion battery that has **improved discharge characteristics that will prevent deterioration during discharging of the battery**... (bold text added by Applicant to indicate advantages)

However, Yamada does not teach that these advantages come from the use of LiSiO and SiO. In contrast, Yamada attributes these advantages to the use of particular materials in the positive electrode (for instance, see paragraphs [0013], [0014], [0090] and [0161]). Accordingly, the Applicant respectfully requests the motivation for making the proposed modification.

Additionally, the cited art does not teach or suggest each of the claim limitations. Claim 19 recites, "an anode having a first medium including first active material and a second medium including a second active material ... and the second medium including SiO and the second active material including LiSiO." Accordingly, claim 19 recites a second medium that includes LiSiO and SiO. This recitation is called "the limitation" below.

Yamada teaches a negative electrode having a layer of negative electrode active material on a negative electrode current collector. However, the Applicant cannot find where Yada teaches or suggests a second layer of negative electrode active material that is on the negative electrode that has a chemical composition that is different from the first layer of negative electrode active material. In the absence of this teaching, Yamada does not teach or suggest a second medium that includes SiO and LiSiO.

Beard does not teach or suggest the limitation. For instance, Beard teaches a layer of an intercalation compound on lithium metal. However, Beard does not teach or suggest that the intercalaction compound includes SiO and LiSiO.

Since neither Beard nor Yamada teaches or suggests the limitation individually, we look at the combined teachings of Beard and Yamada. Beard teaches that suitable intercalaction compounds include transition metals (Abstract). Since SiO and LiSiO do not include transition metals, the combination of Beard and Yamada does not suggest the use of SiO and LiSiO as Beard's intercalaction compound.

Additionally, teachings regarding SiO or LiSiO in Yamada are very scarce. In fact, the only teaching that the Applicant has been able to find in Yamada regarding the use of SiO or LiSiO in Yamada's negative electrode is as follows:

> Moreover, metal elements other than the group 4B elements, including one or more non-metallic elements, and excluding carbon, may be contained in the negative electrode active material. Examples of these negative electrode active materials include SiC, Si_3N_4, Si_2N_2O, Ge_2N_2O, SiO_x, where $0<x\leq 2$, SnO_x, where $0<x\leq 2$, SnO_x, where $0<x\leq 2$, LiSiO and LiSnO.

There is nothing about this teaching that even suggests substituting these compounds for Beard's transition metal compounds. As a result, the combination of Beard and Yamada also does not teach or suggest the limitation.

Since Beard in view of Yamada does not teach or suggest every element of claim 19, claim 19 is patentable over the cited art.

Rejection of Claims 34 and 41 Under 35 USC §102(e)

The rejection of Independent claims 34 and 41 is dependent on the claimed limitations being an inherent result of the teachings in Beard. As discussed with respect to claim 1, when the Beard battery is a primary battery, the Beard battery does not result in a non-zero gradient of a second active material before discharge of the battery. Since the claimed ranges result from a battery having a non-zero gradient of a second active material before discharge of the battery, but Beard does not have such a condition, it cannot be concluded the Beard necessarily achieves the claimed slope.

Rejection of Claims 2-3, 5-18, 20-23, 25-33, 35-40, 42-47, and 74-78

Since each of these claims depends directly or indirectly from a claim that is believed to be in condition for allowance, these claims are also believed to be in condition for allowance.

CONCLUSION

The Examiner is encouraged to telephone the undersigned with any questions.

Respectfully submitted,

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